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Veterinary Microbiology, Vol: 73, Issue: 1, **pp. 25-35, April 4, 2000**

Title:

**Augmentation of antibiotic resistance in
Salmonella typhimurium DT104 following
exposure to penicillin derivatives**

Authors:

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Address:

(No address specified)

Keywords:

**Salmonella typhimurium; Antibiotic resistance;
Gentamicin; Ampicillin; Amoxicillin; Ticarcillin;
Invasion; DT104**

Abstract (English):

Antibiotic resistance in pathogenic bacteria has been a problem in both developed and developing countries. This problem is especially evident in *Salmonella typhimurium*, one of the most prevalent foodborne pathogens. While performing in vitro gentamicin protection-based invasion assays, we found that certain isolates of multiresistant *S. typhimurium* can be 'induced' to exhibit new resistance profiles. That is, bacteria become resistant to a wider range of antibiotics and they also exhibit quantitative increases in MIC values for antibiotics that were part of their pre-induction antibiograms. This 'induction' process involves growing the bacteria to stationary phase in the presence of antibiotics such as ampicillin, amoxicillin or ticarcillin. Since the isolates studied exhibited resistance to ampicillin, amoxicillin and ticarcillin prior to exposing the

bacteria to these antibiotics, the observed phenomenon suggests that resistant *Salmonella* not only have a selective advantage over non-resistant *Salmonella* but their resistance phenotypes can be accentuated when an inappropriate antibiotic is used therapeutically.

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